

**B.TECH. IN AEROSPACE ENGINEERING
(BTAE)**

Term-End Examination

June, 2012

BAS-019 : AIRCRAFT INSTRUMENTS

Time : 3 Hours

Maximum Marks : 70

Note : Attempt any seven questions. All questions carry equal marks.

1. With a neat labelled Diagram
 - (a) Describe the working of an air speed Indicator and state the two error's in indication of the air speed. 5
 - (b) Draw the block diagram of Airdata system mentioning at least four out put. 5
2.
 - (a) Draw a block diagram of the Inertial Navigation System. 5
 - (b) What is the minimum number of satellites required to determine the position of an Aeroplane in space ? Explain in brief. 5
3.
 - (a) What is a Gyroscope ? State the two important properties of a gyroscope. 5
 - (b) Draw a neat sketch of a gyro horizon showing the Aircraft in a level flight Banking at 15° to the left. 5

4. (a) Draw a sketch of Exhaust Gas temperature indicator and explain its different parts. 5
 (b) List any three kinds of probes used for detecting temperature. Explain any one of them in brief. 5
5. Define the following terms : 5x2=10
 (a) True Air Speed
 (b) Indicated Air Speed
 (c) Equivalent Air Speed
 (d) Magnetic Equator
 (e) Isogonic line
6. (a) Draw a labelled sketch of an RPM indicator. 6
 (b) What do you understand by "Stagnation" and "Fast Response" as applied to EGT ? 4
7. (a) Find the minimum distance between Mumbai and Hydrabad. 5
 $\phi_m = 18^\circ 55' N$ $\phi_c = 22^\circ 34' N$
 $\lambda_m = 72^\circ 54' E$ $\lambda_c = 88^\circ 24' E$
 (b) How is the position of Aircraft is indicated w.r.t. VOR station ? 5
8. Distinguish between Real drift and Apparent drift of a gyroscope. 10
9. (a) Define the Marker Beacon and explain its utility. 5
 (b) Draw the Block Diagram of Gonio Meter and Explain it. 5